

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>0000055152</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/013748</b>	International filing date ( <i>day/month/year</i> ) <b>03.12.2004</b>	Priority date ( <i>day/month/year</i> ) <b>12.12.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>C08J9/16, C08J9/232</b>		
Applicant <b>BASF AKTIENGESELLSCHAFT</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>2</u> sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-20 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-11 \_\_\_\_\_ received by this Authority on /filed with the demand
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	<u>1-11</u>	YES
	Claims	<u></u>	NO
Inventive step (IS)	Claims	<u>10</u>	YES
	Claims	<u>1-9, 11</u>	NO
Industrial applicability (IA)	Claims	<u>1-11</u>	YES
	Claims	<u></u>	NO
2. Citations and explanations (Rule 70.7)			
This report makes reference to the following documents:			
D1: EP-A-1 002 829 (BASF AG), 24 May 2000 (2000-05-24)			
D2: DE 38 14 783 A1 (BASF AG, 6700 LUDWIGSHAFEN, DE), 9 November 1989 (1989-11-09)			
D3: WO 98/51735 A (BASF AG; GLUECK, GUISCARD; HAHN, KLAUS; KAEMPFER, KNUT), 19 November 1998 (1998-11-19)			
D4: WO 03/035728 A (POLIMERI EUROPA S.P.A.; GHIDONI, DARIO; LANFREDI, ROBERTO; FRIGERIO, GI), 1 May 2003 (2003-05-01)			
1. Contrary to PCT Article 6, the newly submitted claim 1 is not supported by the description, since its scope goes beyond the scope justified by the description and the drawings. The reasons therefor are as follows: the admixture of soot or graphite to the foam particle mouldings is mentioned in the description only in connection with polystyrene foam (see page 6, line 39 - page 7, line 36), while claims 1-5, upon which claim 6 is dependent, relate to general thermoplastic polymers. Consequently, claim 6 is not admissible.			

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2.	<p>D1-D4 disclose filler-containing, expanded polymer granules. However, D1-D4 do not disclose any of the fillers in the present claim 1. Consequently, the subject matter of claims 1-11 appears to meet the requirements of PCT Article 33(2) for novelty.</p>
3.	<p>Document D4 is considered to constitute the prior art closest to the subject matter of claims 1-11 and discloses (the references in parentheses are to that document) the following process for producing expanded thermoplastic polymer granules: a mixture of n-pentane and iso-pentane is mixed in an extruder into a polystyrene melt previously mixed with fillers. The mixed compound is then led through a perforated nozzle plate to produce beads with a diameter of 1.2 mm. These beads are then cooled under water and dried with hot air (example 2).</p>
4.	<p>Claim 10 of the application differs from the above-mentioned process in that both foaming agents and fillers are added to the polymer melt, and in that the polymer melt is cooled down to a temperature of at least 120°C. The present invention can therefore be considered to address the problem of producing weldable, expandable polymer granules with a density of 8-200 g/l (see examples and lines 6-9 on page 1). This problem was also addressed in D4 (examples). In both cases, the solution consists in carrying out the production of the expandable polymer granules in the polymer melt. However, there is no indication</p>

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	<p>in D4 that could lead a person skilled in the art to dispense with the pre-mixing stage and to add a cooling stage. Consequently, the subject matter of claim 10 involves an inventive step (PCT Article 33(3)).</p> <p>5. The subject matter of claims 1, 3-9 and 11 differs from the examples in D4 only in that a different filler is used (D4 discloses TiO<sub>2</sub>, which is not included in claim 1 of the present application). The problem addressed by the present invention is defined above. In claims 1-9 and 11, the solution is the choice of a different filler.</p> <p>However, this choice can only be considered inventive if it has unexpected effects or properties in comparison with the prior art. The application does not describe any such effects or properties. The density values in the present application do not differ from the values achieved with TiO<sub>2</sub> in D4 (cf. examples). Consequently, the subject matter of claims 1, 3-9 and 11 does not involve an inventive step in relation to D4 (PCT Article 33(3)).</p> <p>6. D4 does not disclose whether the foam particles have open or closed cells. However, this is only relevant to claim 2 of the present application. There does not appear to be any reason why the particles could not have closed cells. Consequently, the subject matter of claim 2 also does not appear to be inventive in relation to D4.</p>